

**WHAT IS CLAIMED IS:**

1. A method for forming a non-rubbing alignment film, comprising following steps of:

5       providing a substrate;

          forming a polymer film on the substrate;

          pressing a surface of a molecular imprint template onto the polymer film,  
wherein the surface of the molecular imprint template has a plurality micro-slots;  
and

10       removing the molecular imprint template.

2. The method of claim 1, wherein the substrate is a glass substrate.

3. The method of claim 1, wherein the substrate is a plastic substrate.

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4. The method of claim 1, wherein the substrate is a semiconductor  
substrate.

5. The method of claim 1, wherein the substrate is a thin film transistor  
20   array substrate.

6. The method of claim 1, wherein the substrate is color filter substrate.

7. The method of claim 1, wherein the material for forming the polymer  
25   film comprises polyimide compound.

8. The method of claim 1, wherein the material for forming the polymer film comprises polyamide compound.

5        9. The method of claim 1, further comprising a step of performing curing process after the polymer film is formed on the substrate.

10        10. The method of claim 9, wherein the curing process comprises a thermal process.

11. The method of claim 9, wherein the curing process comprises a UV irradiation process.

12. The method of claim 10, wherein the temperature used in the thermal process is below 200°C.

13. The method of claim 1, further comprising a step of performing curing process after pressing the surface of the molecular imprint template onto the polymer film.

14. The method of claim 13, wherein the curing process is a thermal process.

15. The method of claim 13, wherein the curing process is a UV irradiation process.

16. The method of claim 14, wherein the temperature used in the thermal process is below 200 °C.

5            17. A method for forming a non-rubbing alignment film, comprising following steps of:

              forming a polymer film on a substrate;

              performing a curing process to cure the polymer film;

              pressing a surface of molecular imprint template onto the polymer film,

10           wherein the surface of the molecular imprint template has a plurality micro-slots;  
              and

              removing the molecular imprint template.

              18. The method of claim 17, the substrate is a glass substrate.

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              19. The method of claim 17, the substrate is a plastic substrate.

              20. The method of claim 17, the substrate is a semiconductor substrate.

20           21. The method of claim 17, wherein the substrate is a thin film transistor array substrate.

              22. The method of claim 17, wherein the substrate is a color filter substrate.

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23. The method of claim 17, wherein a material for forming the polymer comprises polyimide compound.

24. The method of claim 17, wherein a material for forming the polymer  
5 comprises polyamide compound.

25. The method of claim 17, wherein the curing process comprises a thermal process.

10 26. The method of claim 17, wherein the curing process comprises a UV irradiation process.

27. The method of claim 25, wherein the temperature used in the thermal process is below 200 °C.

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28. A method for forming a non-rubbing alignment film of a liquid crystal display, comprising following steps of:

forming a polymer film on a substrate; and

forming a plurality of grooves on the polymer film by a molecular imprint  
20 process.

29. The method of claim 28, the substrate is a glass substrate.

30. The method of claim 28, the substrate is a plastic substrate.

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31. The method of claim 28, the substrate is a semiconductor substrate.

32. The method of claim 28, wherein the substrate is a thin film transistor array substrate.

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33. The method of claim 28, wherein the substrate is a color filter substrate.

34. The method of claim 28, wherein the material for forming the polymer  
10 film comprises polyimide compound.

35. The method of claim 28, wherein the material for forming the polymer film comprises polyamide compound.

15 36. The method of claim 28, further comprising a step of performing curing process after the polymer film is formed on the substrate.

37. The method of claim 36, wherein the curing process comprises a thermal process.

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38. The method of claim 36, wherein the curing process comprises a UV irradiation process.

39. The method of claim 37, wherein the temperature used in the thermal  
25 process is below 200°C.

40. The method of claim 28, wherein the molecular imprinting process comprises following steps of:

pressing a surface of molecular imprint template onto the polymer film,  
5 wherein the surface of the molecular imprint template has a plurality micro-slots;  
and  
removing the molecular imprint template.

41. The method of claim 40, further comprising a step of performing  
10 curing process after pressing the surface of the molecular imprint template onto  
the polymer film.

42. The method of claim 41, wherein the curing process is a thermal  
process.  
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43. The method of claim 41, wherein the curing process is a UV  
irradiation process.

44. The method of claim 42, wherein the temperature used in the thermal  
20 process is below 200 °C.